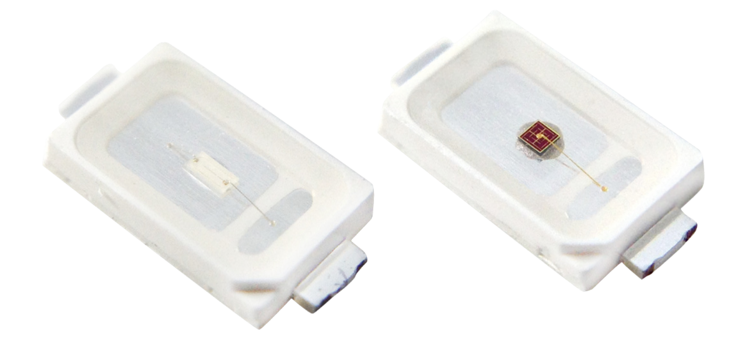




PLCC 5630B Single Color Datasheet



Features :

- Reduce the cost of cultivation
- Extend the flowering season
- Anti-Season cultivation
- Easy to collocate color spectrum
- IR reflow process compatible
- Environmental friendly; RoHS compliance

Typical Applications :

- Panel Light
- Plant Lghting
- Tube Lighting
- Bulb Lighting



Table of Contents



General Information

Introduction

PLCC 5630B Single Color Series can provide the specific wavelengths which are suitable for plant growth. LED applied in plant growth has the advantages of energy efficiency, long life and less heat generation. PLCC 5630B Single Color Series is available in 450nm~745nm which can be used in plant cultivation, greenhouse supplemental lighting and plant factory.

Ordering Code Format

2	T	0 5	X 5	x X	x x	0 0 0	x x x
X1	X2	X3-X4	X5-X6	X7-X8	X9-X10	X11-X13	X14-X16

X1 Type		X2 Component		X3-X4 Series		X5-X6 Wattage		X7-X8 Color	
2	Emitter	T	PLCC	05	5630	X5	0.5W	BX	Blue
								EX	Deep Red
								FX	Cherry Red

X9-X10 Internal code		X11-X13 PCB Board		X14-X16 Serial Number	
-	-	000	-	-	-



Absolute Maximum Ratings

Absolute maximum ratings (T_a=25°C)

Parameter	Symbol	Value	Units
DC Forward Current (Blue) (Deep Red/Cherry Red)	I_F	200 150	mA
Pulse Forward Current (tp<=100μs, Duty cycle=0.25) (Blue) (Deep Red/Cherry Red)	I_{pulse}	400 200	mA
Reverse Current	I_R	10	uA
Reverse Voltage	V_R	5	V
LED Junction Temperature	T_J	115	°C
Operating Temperature	-	-40 ~ +85	°C
Storage Temperature	-	-40 ~ +115	°C
ESD Sensitivity (HBM)	-	2,000	V
Soldering Temperature	T_s	Reflow Soldering : 255~260°C/10~30sec Manual Soldering : 350°C/3sec	

Notes:
1. Proper current derating must be observed to maintain junction temperature below the maximum at all time.
2. LEDs are not designed to be driven in reverse bias.
3. tp: Pulse width time

Characteristics

Parameter	Symbol	Value	Units
Viewing Angle (Typ.)	$2\Theta_{1/2}$	120	Degree
Forward voltage (Typ.) (Blue) (Deep Red/Cherry Red)	V_F	3.2 2.2	V
Thermal resistance	-	10	°C/W
Wavelength (Blue) (Deep Red) (Cherry Red)	-	450-460 650-670 720-745	nm
JEDEC Moisture Sensitivity	-	Level 2a **Floor Life** Conditions: ≤30˚C / 60% RH **Soak Requirements(Standard)** Time (hours): 120+1/-0 Conditions: 60˚C / 60% RH	-

Note:
$2\theta_{1/2}$ is the off-axis angle where the luminous intensity is half of the axial luminous intensity.



Luminous Flux Characteristic

Luminous Flux Characteristics, I_F=150mA, V_F = 5V and T_J=25˚C

Color	Group	Min. Radiometric Power(mW) @150mA	Max. Radiometric Power(mW) @150mA	Order Code
Blue	B0	100.0	130.0	2T05X5BX00000002
	B1	130.0	169.0	
	B2	169.0	219.7	
	B3	219.7	285.6	
	B4	285.6	371.2	
Deep Red	R1	65.0	84.5	2T05X5EX00000001
	R2	84.5	109.8	
	R3	109.8	142.8	
	R4	142.8	185.6	
Cherry Red	R0	50.0	65.0	2T05X5FX00000001
	R1	65.0	84.5	
	R2	84.5	109.8	
	R3	109.8	142.8	

Note:
The luminous flux performance is guaranteed within published operating conditions. Edison Opto maintains a tolerance of ±10% on flux measurements.

Wavelength Bin Structure

Color	Group	Min. Wd (nm)	Max. Wd (nm)
Blue	BU0	450	455
	BV0	455	460
Deep Red	EX0	650	670
Cherry Red	FX1	720	745

Note:
Dominant wavelength Measurement Allowance is ± 1nm.



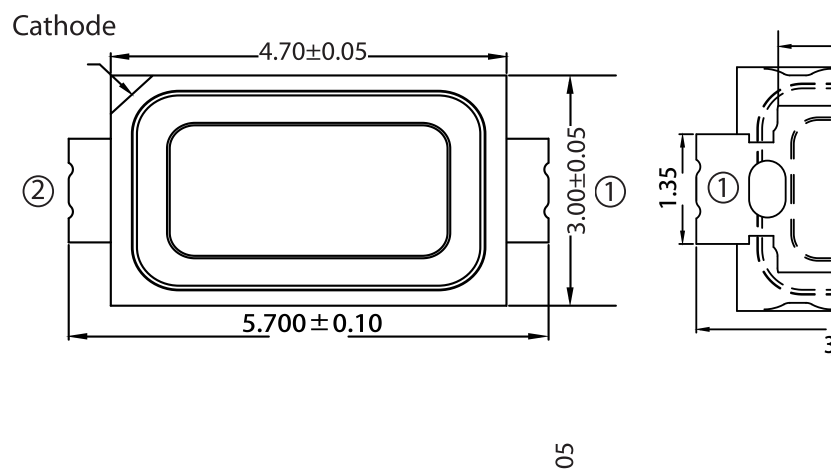
Voltage Bin Structure

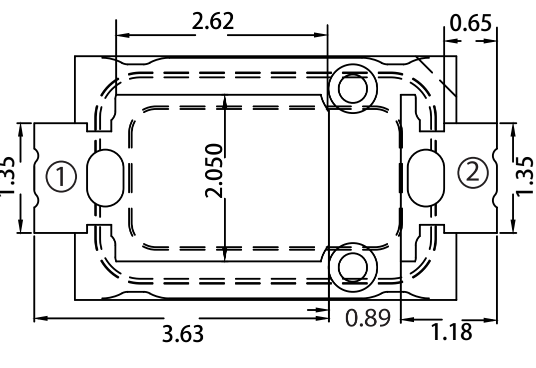
Color	Group	Min. Voltage (V)	Max. Voltage (V)
Blue	VB1	2.9	3.0
	VC1	3.0	3.1
	VA2	3.1	3.2
	VB2	3.2	3.3
	VC2	3.3	3.4
Deep Red	UC3	1.8	1.9
	UA4	1.9	2.0
	UB4	2.0	2.1
	UC4	2.1	2.2
	UA5	2.2	2.3
	UB5	2.3	2.4
	UC5	2.4	2.5
	VA0	2.5	2.6
	VB0	2.6	2.7
	VC0	2.7	2.8
Cherry Red	UC3	1.8	1.9
	UA4	1.9	2.0
	UB4	2.0	2.1
	UC4	2.1	2.2
	UA5	2.2	2.3
	UB5	2.3	2.4
	UC5	2.4	2.5
	VA0	2.5	2.6

Note:
Forward voltage measurement allowance is ± 0.06V.



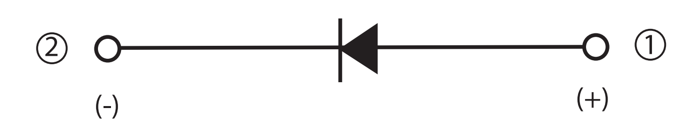
Mechanical Dimensions



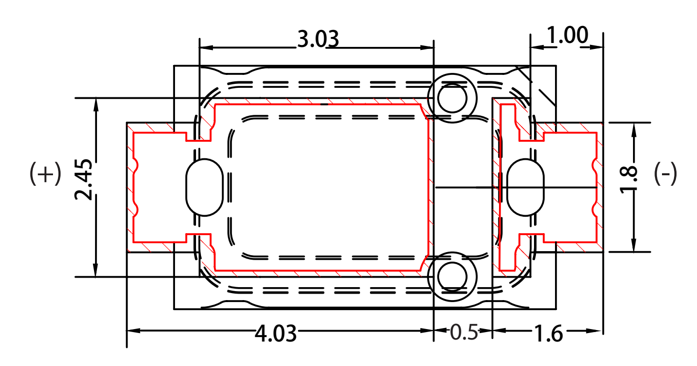




Circuit



Solder Pad

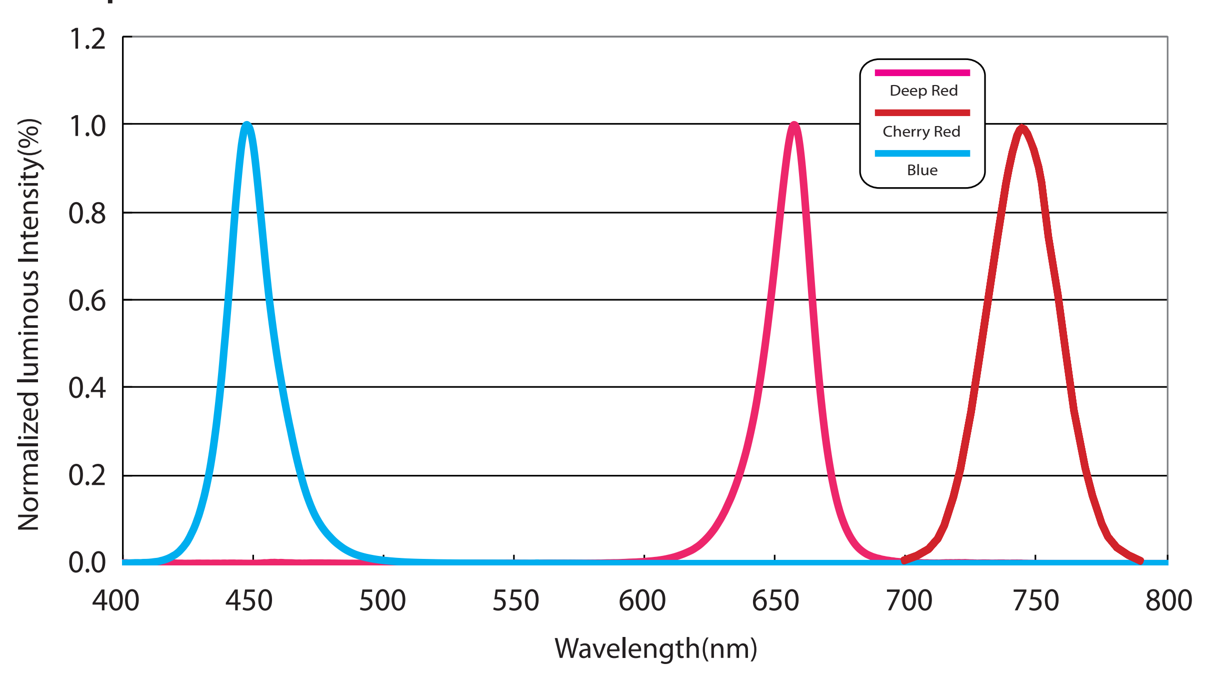


Notes:
1. All dimensions are measured in mm.
2. Tolerance : ± 0.20 mm



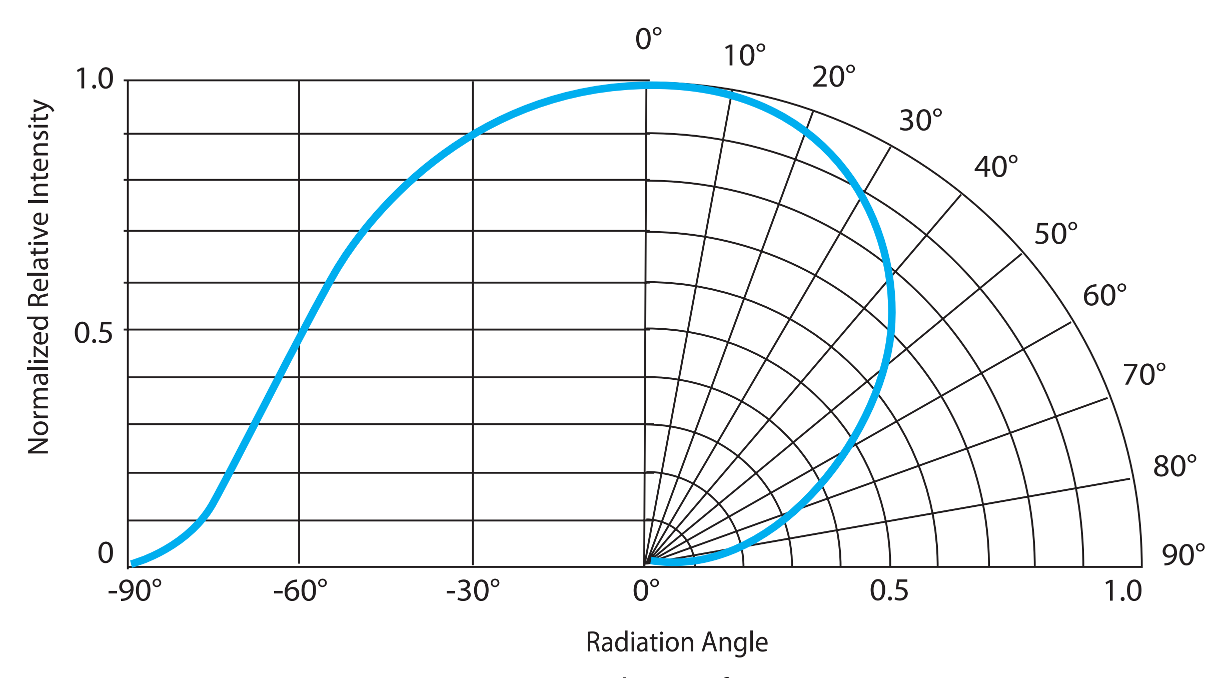
Characteristic curve

Color Spectrum



Color Spectrum at a typical CCT for PLCC 5630B 0.5W Single color

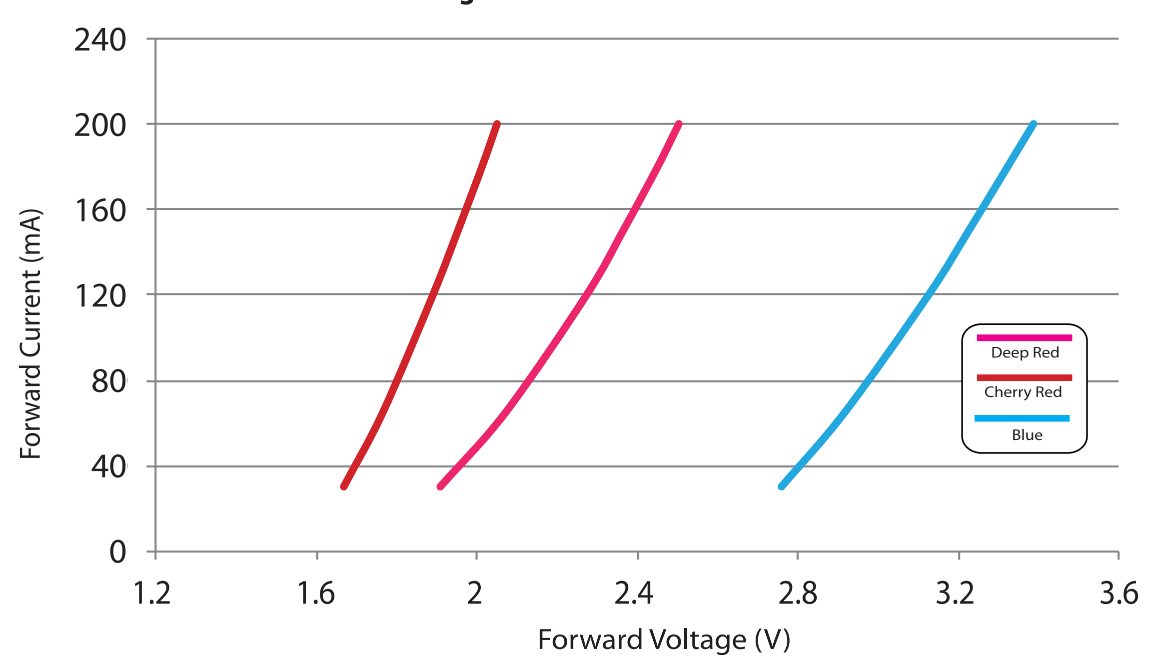
Beam Pattern



Beam pattern diagram for PLCC series

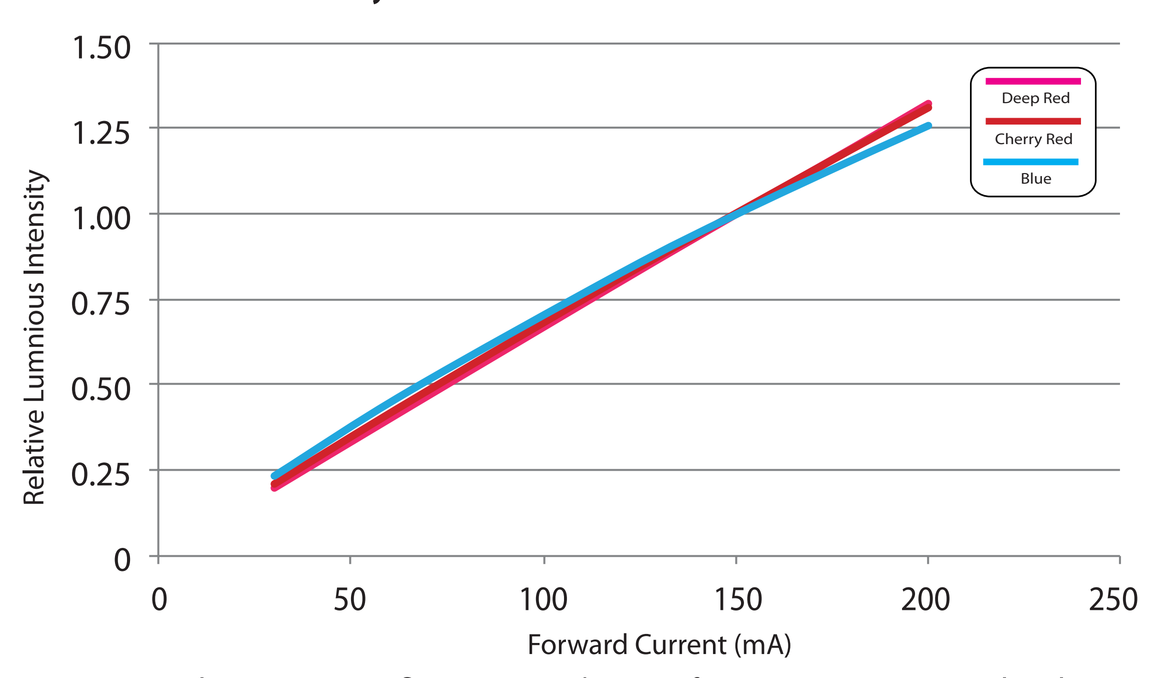


Forward Current vs. Forward Voltage



Forward Current vs. Forward Voltage for PLCC 5630B 0.5W single clolor

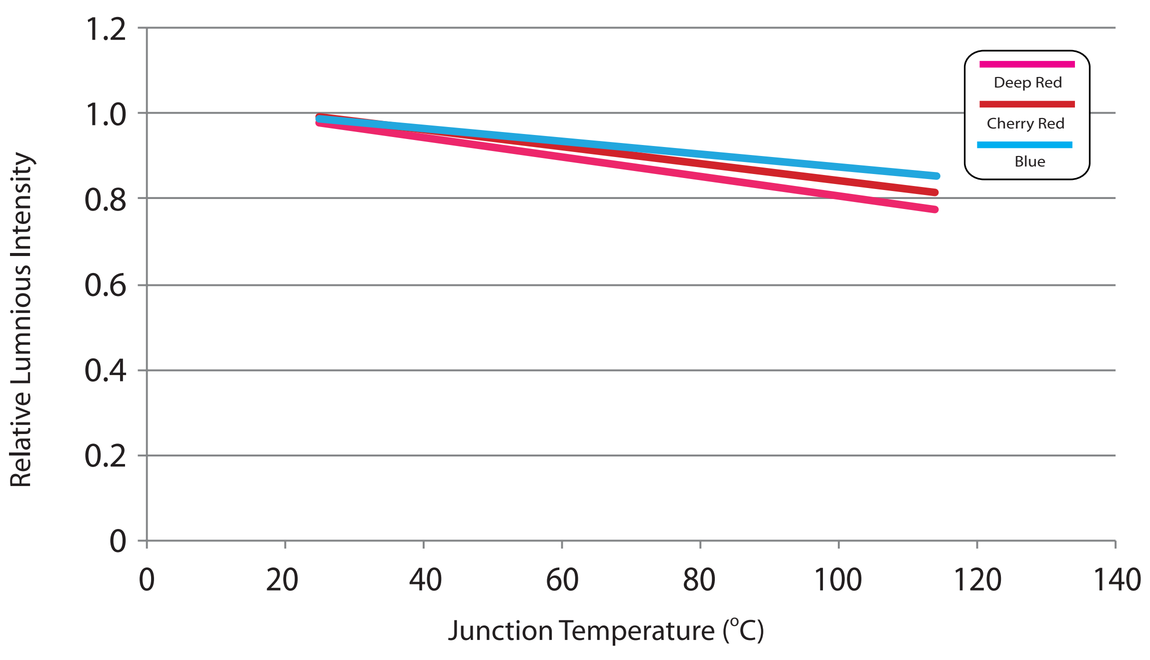
Relative Luminous Intensity vs. Forward Current



Relative Luminous flux vs. Forward current for PLCC 5630B 0.5W Single color

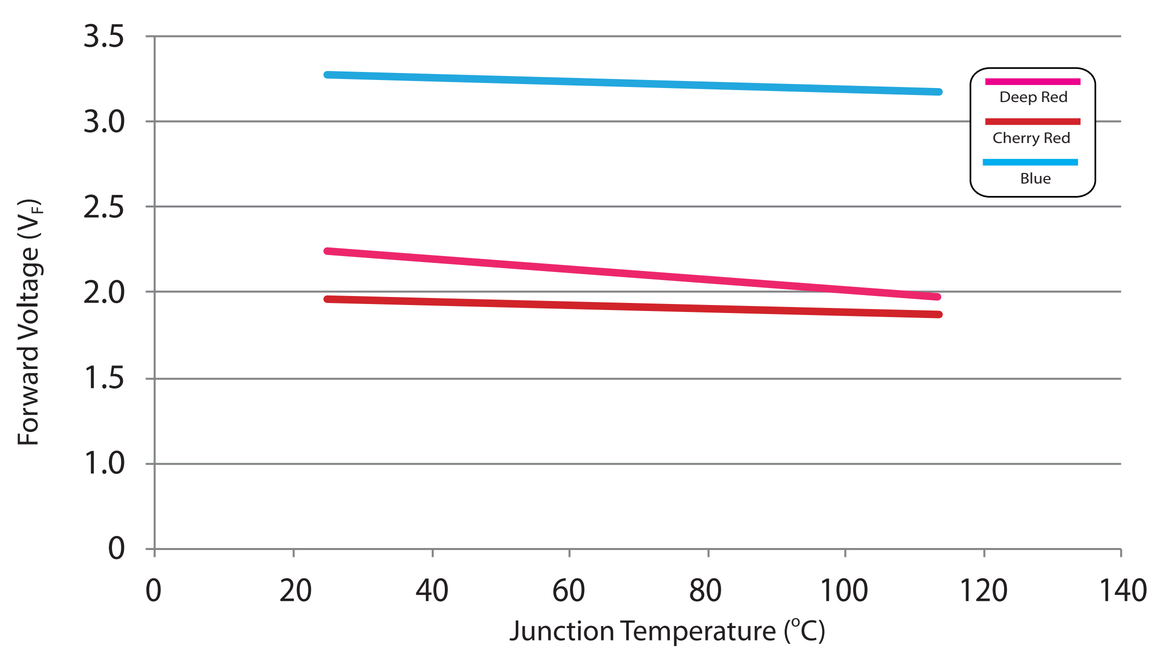


Relative Luminous Flux vs. Junction Temperature



Relative Luminous flux vs. junction temperature for PLCC 5630B 0.5W Single color

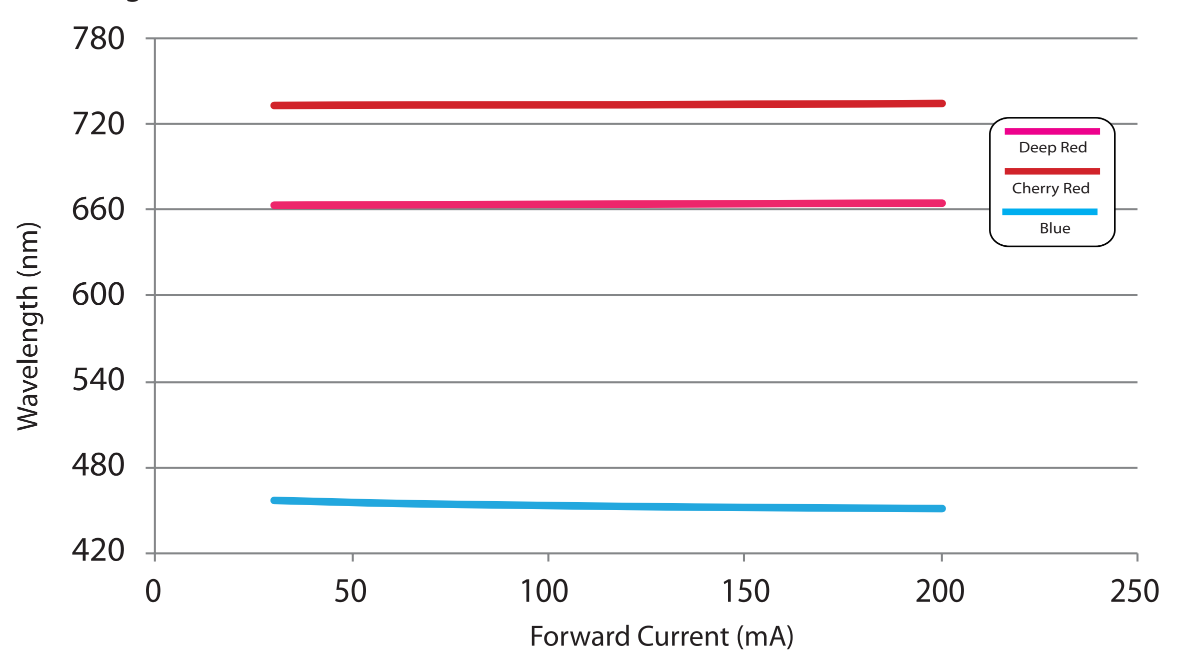
Forward Voltage vs. Junction Temperature



Forward voltage vs. junction temperature for PLCC 5630B 0.5W Single color

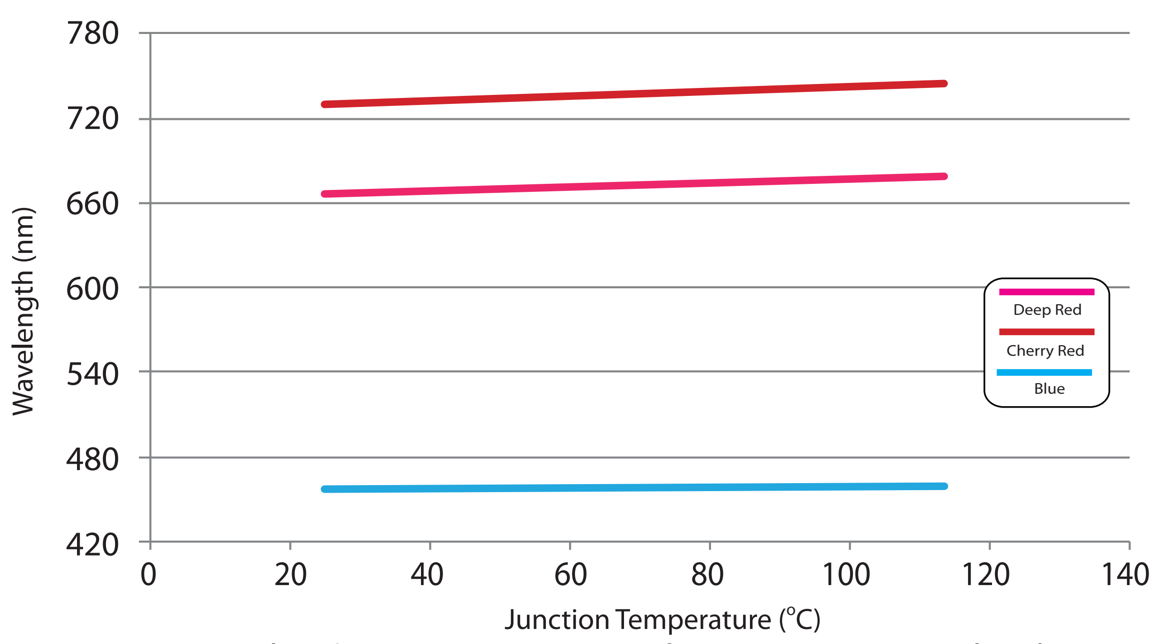


Wavelength vs. Forward Current



Wavelength vs. Forward Current for PLCC 5630B 0.5W Single color

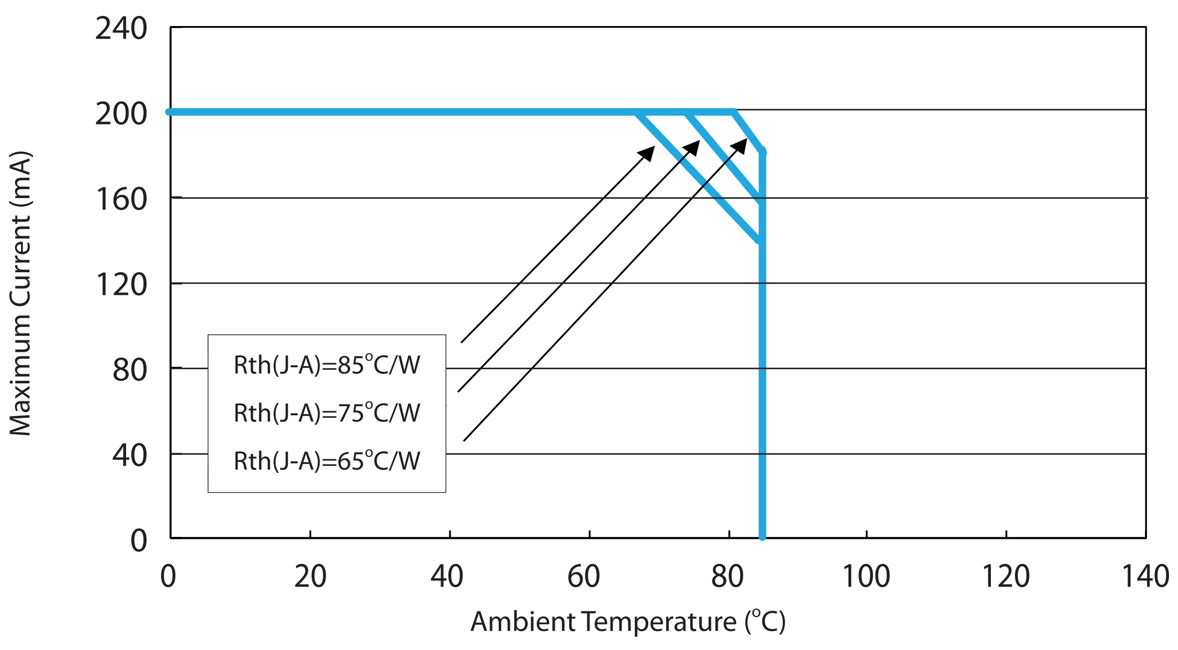
Wavelength vs. Junction Temperature



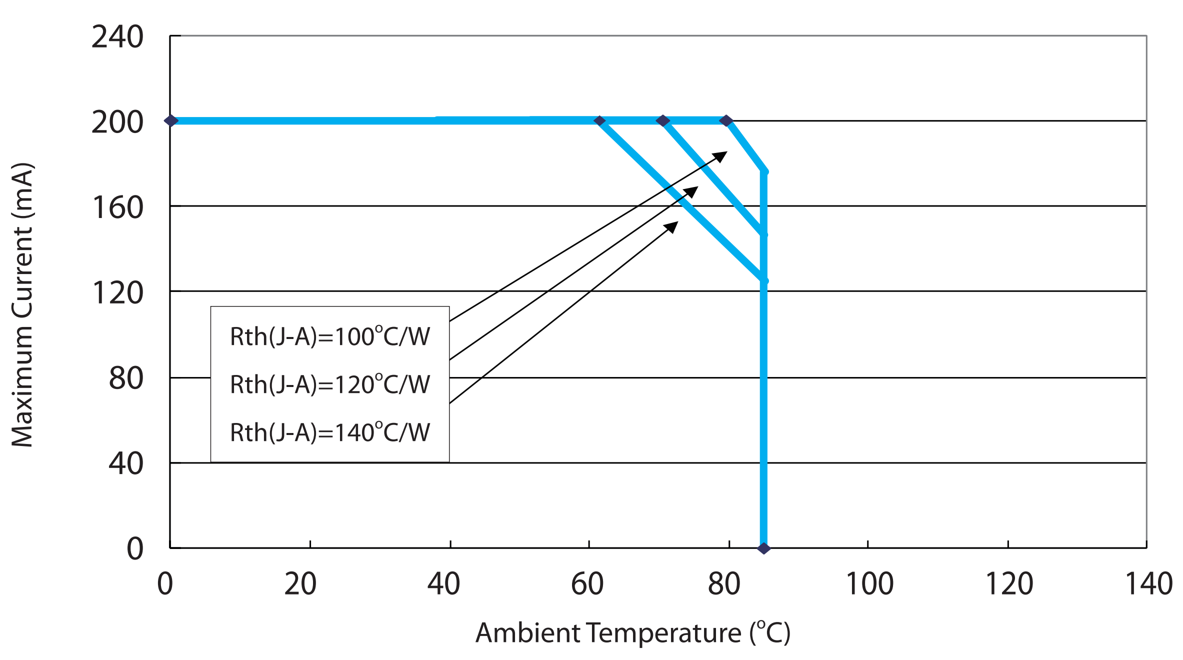
Wavelength vs. junction temperature for PLCC 5630B 0.5W Single color



Maximum Current vs. Ambient Temperature



Maximum Current vs. Ambient Temperature for Blue

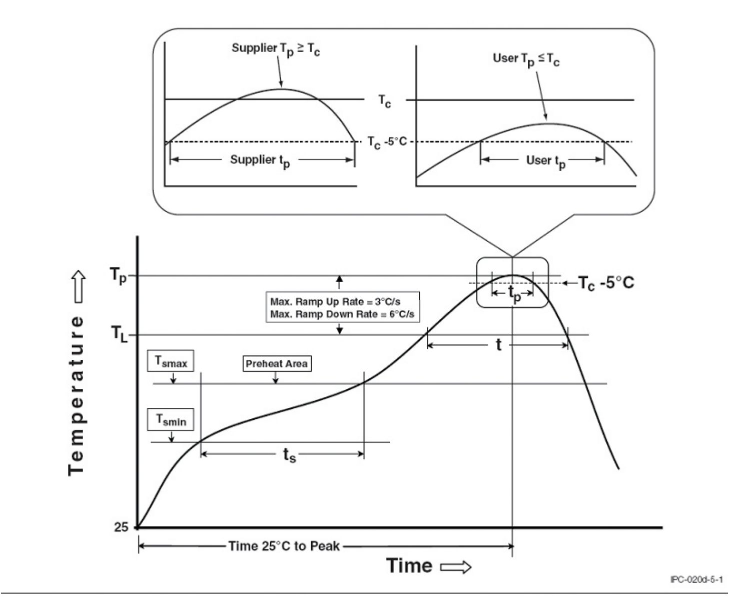


Maximum Current vs. Ambient Temperature for Deep Red & Cherry Red



Reflow Profile

The following reflow profile is from IPC/JEDEC J-STD-020D which provided here for reference.



Reflow Profiles

Classification Reflow Profiles

Profile Feature	Pb-Free Assembly
Preheat & Soak Temperature min (Tsmin) Temperature max (Tsmax) Time (Tsmin to Tsmax) (ts)	150 °C 200 °C 60-120 seconds
Average ramp-up rate (Tsmax to Tp)	3 °C/second max.
Liquidous temperature (TL) Time at liquidous (tL)	217 °C 60-150 seconds
Peak package body temperature (Tp)*	255 °C ~260 °C *
Classification temperature (Tc)	260 °C
Time (tp)** within 5 °C of the specified classification temperature (Tc)	30** seconds
Average ramp-down rate (Tp to Tsmax)	6°C/second max.
Time 25°C to peak temperature	8 minutes max.

Notes:
1. * Tolerance for peak profile temperature (Tp) is defined as a supplier minimum and a user maximum.
2. ** Tolerance for time at peak profile temperature (tp) is defined as a supplier minimum and a user maximum.



Reliability

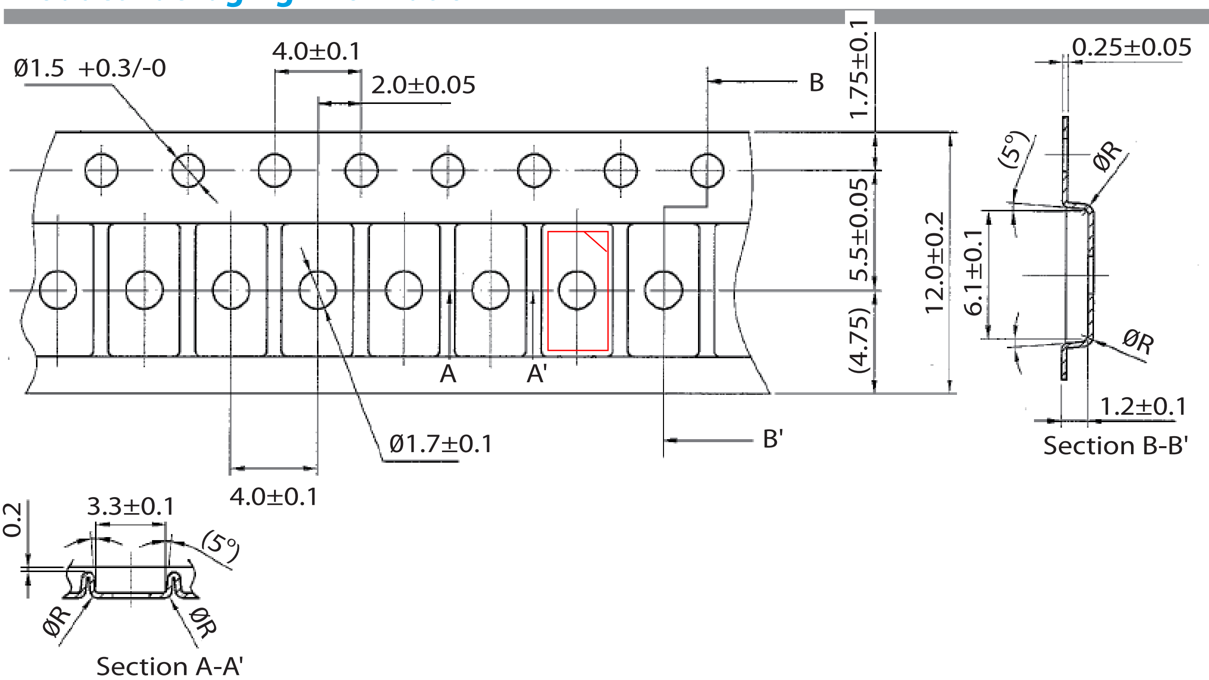
NO .	Test Item	Test Condition	Remark
1	Temperature Cycle	-40°C~100°C 30, 30, mins	100 Cycle
2	Thermal Shock	-40°C~100°C 15, 15 mins ≦10 sec	100 Cycle
3	Resistance to Soldering Heat	T_{SOL}=260°C, 30 sec	3 times
4	Moisture Resistance	25°C~65°C 90% RH 24 hrs / 1 cycle	10 Cycle
5	High-Temperature Storage	T_A=100°C	1,000 hrs
6	Humidity Heat Storage	T_A=85°C RH=85%	1,000 hrs
7	Low-Temperature Storage	T_A=-40°C	1,000 hrs
8	Operation Life test	25°C	1,000 hrs
9	High Temperature Operation Life test	85°C	1,000 hrs
10	High Humidity Heat Life Test	85°C, 85%RH	1,000 hrs
11	ON/OFF Test	30 sec ON, 30 sec OFF	1.5W times

Failure Criteria

Item	Criteria for Judgment	
	Min.	Max.
Lumen Maintenance	85%	-
Δu'v'	-	0.006
Forward Voltage	-	Initial Data x 1.1
Reverse Current	-	10 μA
Resistance to Soldering Heat	No dead lamps or visual damage	

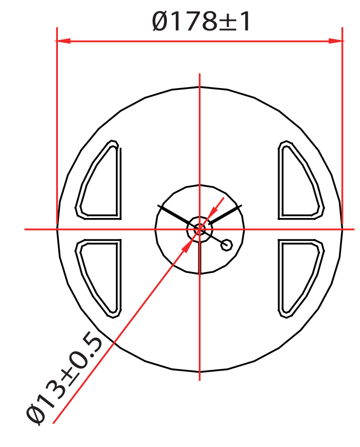


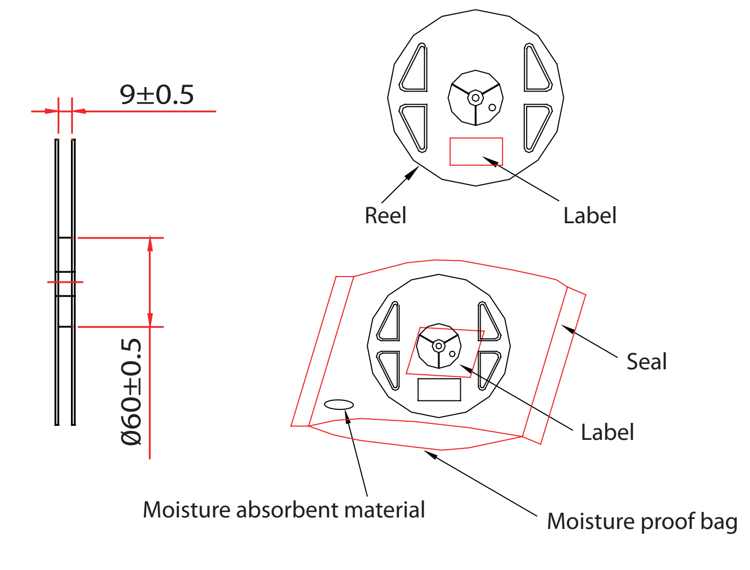
Product Packaging Information





Taping Reel





Note:
All dimensions are measured in mm.

Item	Quantity	Total	Dimensions(mm)
Reel	3,000pcs	3,000pcs	R=178
Carton	36 reels	108,000pcs	520*255*285
Starting with 50pcs empty, and 50pcs empty at the last			



Revision History

Versions	Description	Release Date
1	Establish a Datasheet	2014/11/20

About Edison Opto

Edison Opto is a leading manufacturer of high power LED and a solution provider experienced in LDMS. LDMS is an integrated program derived from the four essential technologies in LED lighting applications- Thermal Management, Electrical Scheme, Mechanical Refinement, Optical Optimization, to provide customer with various LED components and modules. More Information about the company and our products can be found at www.edison-opto.com

www.edison-opto.com

For general assistance please contact:
service@edison-opto.com.tw

For technical assistance please contact:
LED.Detective@edison-opto.com.tw